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## **The Reptiles and Amphibians of Eastern Central Illinois**

PHILIP W. SMITH

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Howard K. Gloyd, Director of the Museum

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# Bulletin of the Chicago Academy of Sciences

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## The Reptiles and Amphibians of Eastern Central Illinois

PHILIP W. SMITH\*

The publication of a list of amphibians and reptiles collected in eastern central Illinois is, in part, a response to many inquiries by local teachers of high school biology and by herpetological investigators of other areas. Since very little survey work on the herpetology of this area has been done, this list to some extent should satisfy their need. This paper summarizes and considerably extends information in a number of previous articles treating the species of limited portions of this region (see Hankinson, 1915, 1917; Peters, 1942).

This area is of special interest because it represents three ecological zones: prairie, the eastern beech-maple forest, and the more westerly oak-hickory forest. The greater portion of the entire area has been extensively cultivated for many years, and the herpetological fauna has been adversely affected by the reduction of suitable natural habitats.

The writer is very grateful to Drs. C. S. Spooner and W. M. Scruggs of the Zoölogy Department at Eastern Illinois State Teachers' College for encouragement and many helpful suggestions. My wife, Dorthy M. Smith, prepared the accompanying map. Mr. K. P. Schmidt assisted greatly with many valuable suggestions. The writer is especially grateful to Drs. H. M. Smith and H. H. Ross for their constructive criticism of this paper, and to Dr. H. K. Gloyd for critical comments on some of the specimens studied.

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## MATERIALS AND METHODS

The greater portion of the specimens recorded from this area were collected by myself or my associates and are deposited in the Illinois Natural History Survey collection and in the museum of the Eastern Illinois State Teachers' College.

This study represents ten years of intensive field work. Well over a thousand specimens have been examined, and many others observed in the field. Due to limited museum space, it was impossible to retain all specimens collected or observed; hence, the relative abundance of the species in nature is not necessarily reflected by either the lists of localities or by the numbers of specimens recorded. In an attempt to obtain additional locality records, a survey has been made of the larger high schools of the region and their locality records added when the place of collection was definitely known. Visual records have also been used in the remarks following the list of localities.

In the list of amphibians and reptiles of the area described, the name of the animal is followed by the counties and localities from which specimens were collected. The number of museum specimens from each locality is enclosed in parentheses, and the present disposition of material is designated by capital letters as follows:

**INHS—Illinois Natural History Survey**

**EISTC—Eastern Illinois State Teachers' College**

**SHS—Shelbyville High School**

**MHS—Mattoon High School**

**GHS--Greenup High School**

**RJS—Robinson Junior High School**

**NHS--Newton High School**

## DESCRIPTION OF THE AREA

The area treated is within a radius of fifty to seventy miles from Charleston, Illinois, and embraces the following counties: Edgar, Clark, Crawford, Jasper, Cumberland, Coles, Douglas, Shelby, and Effingham. The Shelbyville moraine, which in eastern Illinois marks the southern limit of Wisconsin glaciation, roughly divides the region into northern and southern halves (Fig. 1). The elevation ranges from approximately 500 feet to slightly less than 800 feet above sea-level. Principal streams are the Embarrass River, Little Wabash River, and Mill Creek which flow into the Wabash River; and the Kaskaskia River which flows into the Mississippi.

A great variety of habitats exists within this area, but it is divisible into two principal zones: the prairie north of the moraine, and the forested region south of the moraine. The latter may be subdivided into the oak grove savanna and the beech-maple forest.

The prairie region has been recently glaciated and is heavily farmed. It embraces Edgar, Coles, and northern Shelby counties. Cultivation and drainage have transformed this land into almost continuous corn fields with the native vegetation remaining only along railroads and fence rows.

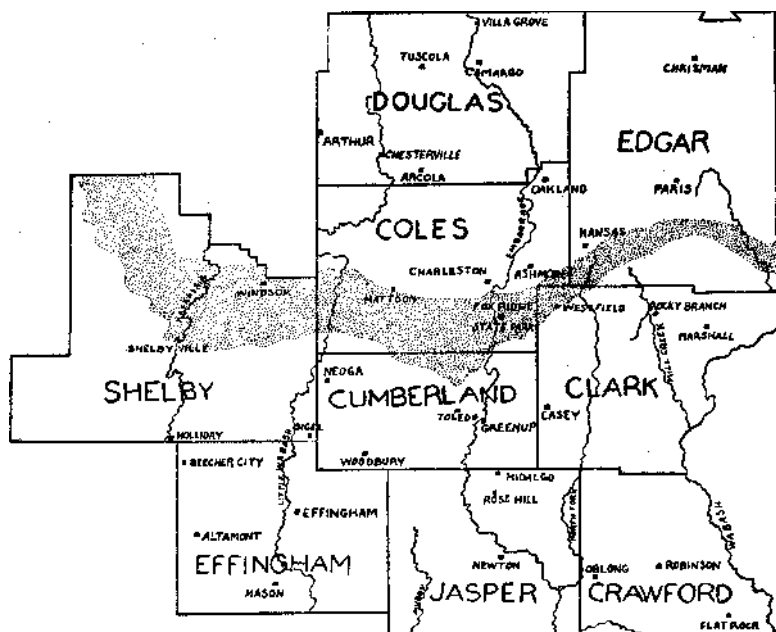


Figure 1. Map of the region studied. Stippled area represents the Shelbyville moraine.

The forested region south of the moraine consists of small hills, rapidly eroding ravines, some farmed bottom lands, and infrequent outcroppings of limestone, sandstone, or shale. The upland, when allowed to remain idle, soon supports thickets of oak, hickory, and berry brambles. Bottom lands and stream margins consist of cottonwood, sycamore, and willow associations.

Along the eastern margin in Clark and Edgar counties, "islands" of beech-maple forest occur, but these represent only a small zone within the area studied.

The moraine and its outwash plain make up a narrow belt from two to fifteen miles wide, similar in vegetation and animal life to the day hills and ravines located to the south.

#### ANALYSIS OF DISTRIBUTION

Analysis of distribution of species occurring in this region is rendered very complex by a number of factors. The ranges of the species are affected not only by the major ecological zones but also by distinctly different habitats available in each.

Altogether 56 forms have been found in this area. Sufficient data have been assembled for 50 of these to indicate their relation to ecological zonation as shown in the tabulation below. For six species—*Ambystoma texanum*, *A. tigrinum tigrinum*, *A. maculatum*, *A. opacum*, *Rana areolata circulosa*, and *Storeria dekayi wrightorum*—the available information does not seem to warrant definite ecological assignment, and these have been omitted from the lists. *Triturus viridescens* and *Desmognathus fusca*, included in the annotated list of species based on specimens recorded by Hankinson, have also been omitted since his specimens have apparently been lost; and these species have not been collected since. Further collecting may reveal additional species now unknown, altering computations made here.

#### ECOLOGICAL DISTRIBUTION OF SPECIES

##### A. Species generally distributed over the entire area.

###### AMPHIBIANS

*Necturus maculosus maculosus*

*Hyla crucifer crucifer*

*Hyla versicolor versicolor*

*Acris gryllus blanchardi*

*Pseudacris nigrita triseriata*

*Rana catesbeiana*

*Rana pipiens pipiens*

###### Reptiles

*Ophisaurus ventralis*

*Natrix sipedon sipedon*

*Thamnophis sirtalis sirtalis*

*Coluber constrictor flaviventris*

*Lampropeltis calligaster calligaster*

*Sistrurus catenatus catenatus*

*Amyda spinifera spinifera*

*Chelydra serpentina*

*Sternotherus odoratus*

*Cbrysemys picta marginata*

*Pseudemys scripta troostii*

*Graptemys pseudogeographica pseudogeographica*

*Terrapene carolina carolina*

## **B. Predominantly prairie species and subspecies.**

- 1. Species known to reach their southern limit of distribution at the Shelbyville moraine in eastern Illinois.**

### REPTILES

*Lampropeltis triangulum triangulum*  
*Natrix kirtlandi*  
*Elaphe vulpina vulpina*  
*Emys blandingi*

- 2. Prairie species occurring farther south in other parts of their ranges but apparently limited to north of the moraine in eastern Illinois.**

### AMPHIBIANS

*Bufo terrestris americanus*

### REPTILES

*Thamnophis radix radix*  
*Natrix grahami*

## **C. Predominantly woodland forms.**

- 1. Species known to reach their northern limit of distribution at about the Shelbyville moraine in eastern Illinois.**

### AMPHIBIANS

*Plethodon glutinosus glutinosus*

### REPTILES

*Sceloporus undulatus hyacinthinus*  
*Eumeces laticeps*  
*Leiolopisma laterale*  
*Ophedrys aestivus*  
*Lampropeltis triangulum ssp. spila*

- 2. Woodland species occurring farther north in other parts of their ranges but apparently limited to south of the moraine in east-central Illinois.**

### AMPHIBIANS

*Rana sylvatica sylvatica*  
*Bufo woodhousii fowleri*

### REPTILES

*Eumeces fasciatus*  
*Storeria occipitomaculata*  
*Haldea valeriae elegans*  
*Carphophis amoena helenae*  
*Diadophis punctatus edwardsii*  
*Elaphe obsoleta obsoleta*  
*Heterodon contortrix contortrix*  
*Lampropeltis getulus niger*  
*Agkistrodon mokeson mokeson*  
*Crotalus horridus horridus*  
*Amyda mutica*  
*Terrapene ornata*

### 3. Species apparently restricted to beech-maple forest.

#### AMPHIBIANS

*Plethodon cinereus cinereus*

*Eurycea bislineata bislineata*

*Rana clamitans*

The generally distributed forms are found throughout this area with no marked zonation. In the main they have a wide distribution.

With few exceptions the prairie species reach their southern limit of range in this area. This limit is especially marked with the species under B1. Exceptions occur with the species listed under B2, for each of which isolated records are known south of this area in prairie "islands."

Likewise, many of the woodland forms reach their limit of range in this region. This break is marked with the species in group C1 and coincides with the cessation of forest at the moraine. Species and subspecies listed in C1 do extend considerably farther north in parts of their ranges but appear to be absent from the prairie in the circumscribed area here studied. This may be due to the absence of suitable habitats.

*Eurycea bislineata bislineata* reaches the extreme western limit of its range in eastern Illinois. *Plethodon cinereus cinereus* and *Rana clamitans* are widely distributed forms, however, and their endemism appears to be the result of strict habitat preferences.

Schmidt (1938) in his admirable paper on the steppe fauna of North America correlates the following *eleven* species with the "prairie peninsula": *Ambystoma tigrinum*, *Rana pipiens*, *Heterodon nasicus*, *Coluber constrictor flaviventris*, *Terrapene ornata*, *Elaphe vulpina*, *Natrix kirtlandii*, *Thamnophis butleri*, *Sistrurus catenatus*, *Emys blandingii*, and *Chrysemys picta marginata*. Of these eleven he lists the last six as endemic. In eastern Illinois the southern limit of the ranges of *Elaphe vulpina*, *Natrix kirtlandii*, and *Emys blandingii* coincides with the margin of Wisconsin glaciation. *Sistrurus catenatus* and *Chrysemys picta marginata*, however, have been taken considerably south of the Shelbyville moraine; and accordingly, do not appear to belong in the same category. On the other hand, it is believed that *Lampropeltis triangulum triangulum*, *Natrix grahamii*, and *Bufo terrestris americanus* should be included in this group. The milk snakes of the Charleston region are obviously *triangulum-syspila* intergrades, while the single specimen from Douglas County is definitely *L. triangulum triangulum*. Likewise, the Jasper County specimen is a fairly typical *syspila*. *Natrix grahamii* and *Bufo terrestris americanus* are not strictly endemic but are predominantly prairie species.



## FAUNISTIC CONCLUSIONS

There is an almost line-like division between black soil prairie north of the moraine and the day soil savanna south of the moraine. When the herpetological fauna was tabulated with respect to these two areas, over half the species were found to exhibit a similar division coinciding with the landscape aspect areas. This is shown in the following table.

SUMMARY OF DISTRIBUTION  
Expressed in Percentages

	Apparently limited to south of the moraine	Limited to north of the moraine	Total number exhibiting endemism	Known to occur both north and south of moraine	Unknown
Salamanders	37.5	0	37.5	12.5	50
Anurans	27.2	9.1	36.3	54.5	9.1
Lizards	80	0	80	20	0
Snakes	50	22.7	72.7	22.7	4.5
Turtles	18.1	9.1	27.2	72.7	0
All Groups	42	12.5	53.5	35.7	10

The above data indicate that, quite apart from climate, the two principal habitats themselves exert a critical influence in limiting the distribution of at least half the herpetological fauna. Many environmental factors are responsible, but an evaluation of these will need special intensive study.

## ANNOTATED LIST OF SPECIES

### AMPHIBIANS

#### Caudata—Salamanders

*Necturus maculosus maculosus* (Rafinesque). Waterdog.

Coles Co.—Charleston (2) EISTC. Cumberland Co.—Greenup (1) INHS. Shelby Co.—Shelbyville (1) SHS.

This wholly aquatic salamander is probably much more common than the locality records indicate. It has not been taken in pond or lake habitats nor in the smaller streams of this region, but fishermen frequently catch them on hook and line in the Embarrass River in the early spring. As many as a dozen have been taken in a single morning of fishing near Charleston. One

or two specimens were present in nearly all the high school biology laboratories visited. While these were usually without collecting data, the instructor usually stated that they had been taken locally and were not supply house specimens.

*Triturus viridescens louisianensis* (Wolterstorff). Newt.

Hankinson reported a single specimen from Charleston, but his specimen has apparently been lost. The absence of recent records may be due to the extensive cultivation of most of the area.

*Ambystoma tigrinum tigrinum* (Green). Tiger Salamander.

Coles Co.—Charleston (5) /NHS. Cumberland Co.—Greenup (1) GHS. Jasper Co.—Newton (1) NHS. Crawford Co.—Robinson (2) RJS.

Nearly every spring there are brought to the Teachers' College laboratories a half dozen specimens of this salamander that have been taken in cellars, meter boxes, etc. It probably occurs in suitable habitats throughout the region, but records are lacking from the prairie counties. Schmidt (1938) lists this species as one of the steppe peninsula forms but does not indicate it as endemic. Most of the specimens taken under natural conditions were near very old ponds. The absence of such ponds in Douglas, northern Edgar, and northern Coles counties may account for the lack of prairie records.

*Ambystoma maculatum* (Shaw). Spotted Salamander.

Coles Co.—Charleston (2) INHS.

This form has been taken only at a small pond within the city limits of Charleston. Both specimens were under tar paper about 100 feet from the edge of the pond. The species is apparently much less common than *A. tigrinum*.

*Ambystoma opacum* (Gravenhorst), Marbled Salamander.

Richland Co.—Olney (1) EISTC.

A single individual was found under a pile of leaves at the Ridgeway Arboretum near Olney. Richland County has not been included in the area studied here; but since the arboretum lies only eight miles south of the Jasper County line, further search may reveal this species in suitable habitats in more northern localities.

*Ambystoma texanum* (Matthes). Small-mouthed Salamander.

Coles Co.—Charleston (5) INHS. Cumberland Co.—Greenup (1) INHS. Jasper Co.—Newton (1) NHS. Shelby Co.—Shelbyville (2) SHS. Crawford Co.—Robinson (2) RJS.

Probably the most common salamander of this area. Many specimens are brought to the Teachers' College each spring and fall. During the drain-

ing of an old pond near Greenup in March of 1937, 81 adult specimens were collected under sticks, leaves, and logs in the course of two or three hours. It has often been found crawling about in fields during the rainy nights of March and April. No records are available from the prairie of the area studied, but specimens have been taken in the adjoining counties to the north. Further collecting will probably reveal specimens from Edgar and Douglas counties.

*Desmognathus fuscus fuscus* (Rafinesque). Dusky Salamander.

This is another form reported by Hankinson from near Charleston for which the specimens have apparently been lost. A careful search of supposedly suitable habitats near Charleston has failed to reveal more recent records.

*Plethodon cinereus cinereus* (Green). Red-backed Salamander.

Clark Co.—Rocky Branch (8) EISTC, (6) INHS.

This is another salamander which is apparently restricted to the beech-maple forest with rock outcroppings. It is moderately common at Rocky Branch and seems to prefer logs and stones on the higher land to the more wet conditions along the stream edge.

*Plethodon glutinosus glutinosus* (Green). Slimy Salamander.

Effingham Co.—Effingham (6) INHS, Mason (5) INHS. Shelby Co.—She b (1) INHS.

Locality records thus far indicate the slimy salamander to be of spotty occurrence in this region. It is quite common under logs and in stumps near Effingham, Mason, and Shelbyville. These three localities have in common small limestone bluffs and many decaying logs. Further search may reveal additional specimens from other localities with similar habitats. The above localities are considerably farther north than Bishop indicates in the *Handbook of Salamanders* (1934). The species probably does not extend north of the moraine in Illinois.

*Eurycea bislineata bislineata* (Green). Two-lined Salamander.

Clark Co.—Rocky Branch (23) EISTC, (10) INHS, Marshall (5) INHS.

The extreme western range limit of this salamander apparently lies in this area. It is abundant at Rocky Branch, a small "island" of beech-maple forest with many sandstone outcroppings, about three miles northeast of Clarksville. Repeated searches of similar outcroppings farther west have failed to furnish other records. In March, April, and May, adult specimens are very common in the creek and under stones at the stream margin.

## Salientia—Frogs and Toads

*Bufo terrestris americanus* Holbrook. American Toad.

Douglas Co.—Chesterville (1) INHS. Coles Co.—Charleston (5) EISTC, Fox Ridge State Park (3) INHS.

Moderately common near Charleston and very common on the prairie of Douglas and northern Coles counties. It has not been taken by us south of Fox Ridge State Park. The species begins calling in mid-April in the Charleston area and continues until mid-May.

*Bufo woodhousii fowleri* Hinckley. Fowler's Toad.

Effingham Co.—Effingham (1) INHS. Jasper Co.—Rosehill (5) INHS. Coles Co.—Charleston (4) EISTC, Fox Ridge State Park (12) INHS. Cumberland Co.—Greenup (2) INHS. Shelby Co.—Holliday (2) INHS.

Fowler's toad probably occurs throughout this part of Illinois, but is much more common south of the Shelbyville moraine. Near Charleston this toad and *B. terrestris americanus* appear to be equally common. *B. woodhousii fowleri* ordinarily does not enter the breeding pools until after *americanus* has ceased calling. This has been suggested as an important factor in preventing the two species from hybridizing.

*Acris gryllus blanchardi* Harper. Cricket Frog.

Coles Co.—Ashmore (45) EISTC, Charleston (3) EISTC, Fox Ridge State Park (5) INHS.

These frogs are exceedingly common in this area and probably are present in every permanent pool and stream. They are very late breeders in central Illinois. The season appears to be from mid-May through July.

*Pseudacris nigrita triseriata* (Wied). Striped Tree Frog.

Coles Co.—Charleston (5) INHS, Fox Ridge State Park (9) INHS. Clark Co.—Rocky Branch (2) INHS. Cumberland Co.—Greenup (10) EISTC.

Abundant in nearly every pool and ditch in early March but rarely taken in the summer and fall. Probably occurs throughout the region.

*Hyla crucifer crucifer* Wied. Spring Peeper.

Coles Co.—Charleston (6) INHS, Fox Ridge State Park (12) INHS. Cumberland Co.—Greenup (8) EISTC.

One of the most abundant frogs of the region. It is seldom taken in summer and autumn, but nearly every pool in March and April contains breeding individuals. It probably occurs over the entire area. *Hyla crucifer*,

*Pseudacris nigrita triseriata*, and *Rana sylvatica* appear to be not only the first frogs to emerge from hibernation but also the earliest breeders. The earliest breeding date for these species in this region is March 2. Peepers usually continue calling until late April and have been collected in the breeding pools in late May. Those calling so late in the season, however, usually had recommenced during or following a heavy rain. Such heavy showers have been observed to result in other species calling long after the peak of their breeding season.

*Hyla versicolor versicolor* (LeConte). Common Tree Frog.

Coles Co.—Fox Ridge State Park (2) INHS, Charleston (4) INHS. Jasper Co.—Rosehill (2) INHS. Shelby Co.—Shelbyville (2) SHS. Effingham Co.—Mason (2) INHS.

Tree frogs of this species probably occur throughout this region. Specimens can be collected nearly as successfully on dead branches, in deserted woodpecker holes, or under bark in September and October as in the breeding pools. Breeding appears to be from mid-May through most of June in central Illinois.

*Rana areolata circulosa* Rice and Davis. Gopher Frog.

Coles Co.—Charleston (3) INHS. Cumberland Co.—Toledo (2) INHS, Greenup (1) INHS.

In addition to those from the localities listed, others have been seen near Neoga in Cumberland County. No specimens are available from the prairie of Douglas, Edgar, and northern Coles counties. In this region the breeding season seems to depend on the mildness of the spring. The earliest date known to us is March 7. The period of calling from the pools appears to be less than three weeks except for occasional individuals that recommence during very heavy rains.

*Rana catesbeiana* Shaw. Northern Bull Frog.

Cumberland Co.—Greenup (1) INHS. Coles Co.—Charleston (4) EISTC, Fox Ridge State Park (5) INNS. Crawford Co.—Robinson (1) RJS.

Bull frogs are moderately common in ponds, small streams, and rivers. They probably occur throughout the region. Breeding is from late May through most of June. Occasional individuals may be heard as late as July.

*Rana clamitans* Latreille. Green Frog.

Clark Co.—Rocky Branch (3) INHS.

Rare in this area. Specimens have been taken at Rocky Branch, a habitat already discussed. Attempts to find other locality records have thus far been unsuccessful.

***Rana pipiens pipiens* Schreber. Leopard Frog.**

Cumberland Co.—Greenup (1) EISTC. Jasper Co.—Rosehill (2) INHS. Coles Co.—Charleston (11) EISTC, Fox Ridge State Park (14) INHS. Crawford Co.—Robinson (1) RJS. Shelby Co.—Holliday (2) INHS. Clark Co.—Marshall (1) INHS.

This is the most common *Rana* of central Illinois and it undoubtedly occurs in most of the ponds and streams of this region. Breeding extends from mid-March into June.

***Rana sylvatica. sylvatica* (LeConte). Wood Frog.**

Coles Co.—Charleston (2) EISTC, Fox Ridge State Park (11) INHS. Effingham Co.—Mason (1) INHS.

Wood frogs appear to be of spotty occurrence in this part of Illinois. They are quite common near Mason, near Charleston, and in Fox Ridge State Park. Woodland seems to be the only similarity in the three localities. Specimens have been taken every month in the year in Fox Ridge State Park. It is one of the first species to breed in the spring.

Leg length ratios for ten frogs were found to vary between .567 and .658 with an average of .605. This character and the comparative smoothness of the skin between the dorsolateral folds place them fairly definitely in the subspecies *sylvatica*.

REPTILES

Sauria Lizards

***Sceloporus undulatus hyacinthinus* (Green). Swift.**

Effingham Co.—Mason (4) INNS, Effingham (3) INHS. Shelby Co.—Shelbyville (7) SHS, (1) INHS.

This lizard is apparently restricted to wooded areas with limestone outcroppings. It and the salamander, *P. glutinosus*, have nearly always been taken together in this area. The northern limit of its range lies in this region.

***Ophisaurus ventralis* (Linnaeus). "Glass Snake."**

Douglas Co.—Chesterville (1) INHS.

A single specimen was found crossing the highway near Chesterville in June of 1941. The place of its capture was about 100 yards from the Kaskaskia River, which in that vicinity is closely bordered by cornfields. Repeated searches of that area have revealed no others. While there are no records from the counties south of the moraine in the circumscribed area treated, the species is known to occur in southern Illinois. Probably this is a form that has become nearly exterminated in Illinois as a result of the extensive cultivation.

*Leiopeltis lateralis* (Say). Brown-backed Skink.

Jasper Co.—Rosehill (4) EISTC, (1) INHS. Effingham Co.—Mason (1) INHS.

Common near Rosehill and occasional near Mason. These localities probably represent the northern limit of the range of this species.

*Eumeces fasciatus* (Linnaeus). Common Five-lined Skink.

Jasper Co.—Rosehill (8) EISTC. Clark Co.—Rocky Branch (1) EISTC. Effingham Co.—Mason (2) INHS. Cumberland Co.—Toledo (1) INHS.

This skink is commonly associated with *E. laticeps* and equally abundant in the wooded areas south of the moraine. It has been collected above the moraine in other parts of Illinois; but in the region here considered, a rather thorough search *has* failed to reveal prairie records.

*Eumeces laticeps* (Schneider). Greater Five-lined Skink.

Effingham Co.—Effingham (1) INHS. Cumberland Co.—Toledo (1) INHS, Greenup (1) INHS. Coles Co.—Charleston (1) INHS, Fox Ridge State Park (3) INHS. Jasper Co.—Rosehill (1) INHS. Clark Co.—Marshall (2) INHS.

Moderately common in wooded areas of the moraine and to the south. In eastern Illinois the northern limit of its range appears to coincide exactly with the moraine.

Serpentes—Snakes

*Carphophis amoenae helenae* (Kennicott). Worm Snake.

Effingham Co.—Effingham (1) INHS.

This species is represented by a single specimen collected near Effingham in 1928.

*Diadophis punctatus edwardsii* (Menem). Ring-necked Snake.

Coles Co.—Charleston (1) INHS.

A single large specimen was found under a flat stone in a shale outcropping near Charleston. Slightly more than half of the ventral scutes have medial spots. Otherwise, it is typical of *edwardsii*.

*Heterodon contortrix contortrix* (Linnaeus). Hog-nosed Snake.

Coles Co.—Charleston (2) EISTC, Fox Ridge State Park (4) INHS. Shelby Co.—Shelbyville (3) SHS. Crawford Co.—Robinson (1) RJS. Cumberland Co.—Greenup (1) INHS.

With the exception of the common water snake, this species is probably our most abundant snake. No records are present from the prairie of the

northern counties as yet; but it has been seen DOR\* in many localities on the moraine and southward.

***Opheodrys aestivus* (Linnaeus). Keeled Green Snake.**

Jasper Co.—Rosehill (1) INHS. Effingham Co.—Mason (1) EISTC. Cumberland Co.—Greenup (1) INHS. Coles Co.—Charleston (2) INHS, Fox Ridge State Park (2) INHS. Crawford Co.—Robinson (1) RJS.

Green snakes are moderately common in wooded areas and pasture lands south of the Shelbyville moraine. None have been seen north of the moraine. This species is most often collected after heavy summer showers.

***Coluber constrictor entris* Say. Blue Racer.**

Coles Co.—Charleston (2) EISTC, Fox Ridge State Park (1) INHS. Jasper Co.—(1) INHS. Cumberland Co.—Greenup (1) GHS. Shelby Co.—Shelbyville (2) SHS.

Moderately common in both prairie and woodland habitats.

***Elaphe obsoleta obsoleta* (Say). Pilot Black Snake.**

Coles Co.—Charleston (1) EISTC, Fox Ridge State Park (3) INHS. Jasper Co.—Rosehill (2) INHS. Cumberland Co.—Neoga (1) EISTC, Greenup (2) GHS. Shelby Co.—Shelbyville (1) SHS.

Pilot black snakes occur commonly in wooded areas south of the Shelbyville moraine. None have been seen on the typical prairie of the northern counties. Near Rosehill a river bluff serves as hibernating headquarters for many of these snakes. In October it is not unusual to take six or eight large specimens in a single morning.

***Elaphe vulpina vulpina* (Baird and Girard). Fox Snake.**

Douglas Co.—Arcola (1) INHS.

Although only one specimen was actually taken within the area here treated, this species is probably fairly common on the prairie of Coles, Edgar, and Douglas counties. DOR specimens have been seen repeatedly but a few miles north of the Douglas County line. It is believed that this form does not extend south of the Shelbyville moraine.

***Lampropeltis calligaster calligaster* (Harlan). Prairie King Snake.**

Cumberland Co.—Toledo (1) INHS, Greenup (3) EISTC. Coles Co.—Charleston (1) EISTC, Loxa (1) EISTC, Fox Ridge State Park (3) INHS. Shelby Co.—Shelbyville (2) SHS, Sigel (1) INHS. Crawford Co.—Robinson (2) RJS.

Apparently equally common on the prairie and in the wooded areas farther to the south. Seen DOR in most of the localities within this region.



*Lampropeltis getulus niger* (Yarrow). Black King Snake.

Jasper Co.—Rosehill (1) INHS. Cumberland Co.—Diona (1) INHS.

This king snake seems to be quite rare in central Illinois. The Rosehill specimen was found in a rotten log in a wooded ravine. The other listed above was found DOR on the outwash plain near Diona. Another was seen DOR near Greenup in 1937.

*Lampropeltis triangulum triangulum* (Lacépède). Common Milk Snake.

Douglas Co. --Chesterville (1) INHS.

This subspecies is represented by a single large male collected on the prairie near Chesterville. The specimen is abnormal in having only 41 dorsal blotches, rather indistinct rows of lateral spots which tend to fuse with each other and the ventral spots, a peculiar head pattern, and a heavily mottled venter. The number and narrowness of the dorsal blotches and the presence of two alternating rows of lateral spots place it in this subspecies, however, and none of the characters, other than the reduced number of blotches, indicate it to be an intergrade. Instead, the dark brown of the dorsal blotches, the heavy pigmentation of the interspaces and venter, and the unusual head pattern suggest melanism.

*Lampropeltis triangulum sypila* (Cope). Red Milk Snake.

Coles Co.—Charleston (2) INHS, Fox Ridge State Park (2) INHS. Jasper Co.—Rosehill (1) INHS.

As stated earlier in this paper the milk snakes in the immediate vicinity of Charleston are intergrades of *sypila* and the preceding subspecies. However, all specimens taken at Charleston and Fox Ridge State Park agree in the small number of dorsal blotches, vivid red of the dorsal and lateral spots, and the presence of a single row of lateral spots. They exhibit intergradation in the varying head patterns and the width of the dorsal blotches. The characters designating *sypila* predominate, and they all key out to this subspecies. The single specimen from Jasper County appears to be a typical *sypila*. Milk snakes are not common in this region. Their favorite habitat seems to be wooded areas with many fallen trees. Most of the specimens taken at the above localities were found by stripping bark from decaying stumps and logs. One other individual was seen near Greenup.

*Natrix grahamii* (Baird and Girard). Graham's Water Snake.

Douglas Co.—Chesterville (1) INHS.

A single specimen was found near Chesterville in late November of 1941. Attempts to find others along the prairie streams have thus far been

unsuccessful. This is a prairie species, however, and may eventually be taken in northern Coles and northern Edgar counties.

*Natrix kirtlandii* (Kennicott). Kirtland's Water Snake.

Coles Co.—Charleston (3) INHS. Douglas Co.—Chesterville (2) INHS.

Moderately common near Charleston in both wooded areas and along prairie streams. Seen DOR near Tuscola and Arcola in Douglas County. Probably not uncommon throughout the prairie counties. None have been seen from the area south of the moraine.

*Natrix sipedon sipedon* (Linnaeus). Common Water Snake.

Cumberland Co.—Greenup (1) INHS. Jasper Co.—Hidalgo (1) INHS, Rosehill (2) EISTC. Coles Co.—Charleston (1) EISTC, Fox Ridge State Park (2) INHS. Shelby Co.—Shelbyville (1) SHS. Douglas Co.—Chesterville (2) INHS.

Abundant and probably occurring in every pond and stream in the region.

*Storeria occipitomaculata occipitomaculata* (Storer). Red-bellied Snake.

Cumberland Co.—Greenup (1) INHS.

Apparently this little snake is rare in the area. One other was seen near Charleston.

*Storeria dekayi wrightorum* Trapido. DeKay's Snake.

Cumberland Co.—Greenup (2) INHS. Coles Co.—Charleston (1) INHS, Fox Ridge State Park (1) INHS.

This species is moderately common near Charleston and probably occurs in pasture lands and woodland throughout this region. A small albino was found near the college campus in 1942. Unfortunately it escaped before it could be preserved.

*Haldea valeriae elegans* (Kennicott). Ground Snake.

Clark Co.—Rocky Branch (1) INHS. Effingham Co.—Effingham (2) INHS.

Evidently uncommon in this part of the state. Other specimens have been seen near Newton in Jasper County.

*Thamnophis radix radix* (Baird and Girard). Plains Garter Snake.

Coles Co.—Charleston (1) EISTC, Mattoon (2) MHS.

This species indicates a decided preference for the recently glaciated prairie. None have been seen south of the moraine, whereas DOR specimens have been seen in many localities in Douglas and northern Coles counties.

*Thamnophis sirtalis sirtalis* (Linnaeus). Common Garter Snake.

Cumberland Co.—Greenup (1) EISTC. Coles Co.—Charleston (2) INHS, Fox Ridge State Park (3) INHS. Jasper Co.—Newton (1) INHS. Shelby Co.—Shelbyville (2) SHS.

Apparently common over the entire region. In addition to the specimens listed above, others have been seen from both the prairie of Douglas County and the wooded areas south of the moraine.

*Agkistrodon mokeson mokeson* (Daudin). Copperhead.

Cumberland Co.—Greenup (1) INHS.

The specimen listed above (a very young example) was found one-half mile north of Greenup at the base of a shale outcropping in September of 1937. Peters (1942) reported two more recently from the same vicinity. Farmers report seeing this species occasionally north of Effingham and there is little reason to doubt its presence as there are many limestone bluffs in that area.

*Sistrurus catenatus catenatus* (Rafinesque). Eastern Massasauga.

Fayette Co.—Vandalia (1) INHS.

The individual listed was taken near the State Penal Farm north of Vandalia. Several others have been seen by the writer from that area. This locality lies a few miles west of the area here considered, but the species has been included since others have been seen by the writer. A fine large example was captured near Diona in the fall of 1938, but apparently lost. It is reported as common at Parker's Prairie (outwash plain) north of Casey in Clark County.

*Crotalus horridus horridus* Linnaeus. Timber Rattlesnake.

Jasper Co.—Rosehill (1) INHS. Coles Co.—Charleston (2) EISTC.

This rattlesnake is of rare occurrence in this area. In addition to the museum specimens, others have been seen near Greenup and near Hidalgo.

### Testudinata Turtles

*Sternotherus odoratus* (Latreille). Musk Turtle.

Cumberland Co.—Woodbury (2) INNS. Crawford Co.—Robinson (1) INHS, Flatrock (1) EISTC. Douglas Co.—Camargo (1) INHS.

Musk turtles are very common in Lake Woodbury and probably occur in other ponds with suitable mud bottoms.

***Chelydra serpentina* (Linnaeus). Snapping Turtle.**

*Coles Co.*—Charleston (1) EISTC, Fox Ridge State Park (1) INHS. *Douglas Co.*—Chesterville (1) INHS. *Shelby Co.*—Shelbyville (1) SHS, Holliday (1) INHS. *Crawford Co.*—Robinson (1) RJS.

The snapping turtle undoubtedly occurs throughout this region in nearly all types of aquatic habitats. Specimens have been seen from most of the localities in the area studied.

***Emys blandingii* (Holbrook). Blanding's Turtle.**

*Cumberland Co.*—Toledo (2) INHS.

Hankinson reported a specimen from a small prairie pond near Charleston, but it has evidently been lost. This turtle appears to be rare in this region. Both specimens from Toledo are very small.

***Terrapene carolina carolina* (Linnaeus). Common Box Turtle.**

*Effingham Co.*—Mason (1) INHS. *Coles Co.*—Charleston (2) INHS, Fox Ridge State Park (2) INHS. *Cumberland Co.*—Toledo (2) INHS, Greenup (1) INHS. *Shelby Co.*—Shelbyville (4) SHS. *Jasper Co.*—Newton (2) INHS, Rosehill (1) INHS. *Crawford Co.*—Robinson (1) RJS.

Probably occurs throughout the area. A few specimens have been seen from the prairie of Douglas County, but it is much more common south of the Shelbyville moraine.

***Terrapene ornata* (Agassiz). Ornate Box Turtle.**

*Jasper Co.*—Newton (1) EISTC. *Crawford Co.*—Robinson (2) INHS. *Effingham Co.*—Mason (2) INHS.

This box turtle is decidedly spotty in its occurrence, and its presence in widely differing habitats is not easily accounted for. Although it is reportedly a prairie form, it appears to be restricted to the savanna south of the moraine in this area. It has been found as often in woodlands in this portion of the state. Near Robinson it is nearly as common as *T. carolina*. Individuals have also been seen on the outwash plain north of Casey in Clark County.

***Graptemys geographica* (Le Sueur). Geographic Turtle.**

*Coles Co.*—Charleston (1) INHS.

A very large specimen of this turtle was shot under the Embarrass River bridge near Charleston. No others have been seen by the writer.

***Graptemys pseudogeographica pseudogeographica* (Gray). False Map Turtle.**

*Cumberland Co.*—Greenup (1) INHS. *Shelby Co.*—Shelbyville (1) INHS.

Several have been seen near Shelbyville and near Charleston.

*Chrysemys picta marginata* Agassiz. Painted Turtle.

Coles Co.—Charleston (1) INHS, Fox Ridge State Park (2) INHS. Cumberland Co.—Woodbury (4) INHS, Greenup (1) EISTC. Douglas Co.—Chesterville (1) INHS. Shelby Co.—Shelbyville (1) SHS. Clark Co.—Casey (1) INHS.

This form probably occurs in all permanent waters of this area. Specimens have been seen from most of the localities in this region. Occasional individuals approach *Chrysemys picta bellii* in the markings on the plastron.

*Pseudemys scripta troostii* (Holbrook). Troost's Turtle.

Cumberland Co.—Woodbury (3) INHS. Crawford Co.—Robinson (1) INHS. Coles Co.—Fox Ridge State Park (1) INHS.

This turtle probably occurs in lakes and large ponds throughout this region. Several have been seen in the campus lake at Charleston.

*Amyda mutica* (Le Sueur). Brown Soft-shelled Turtle.

Coles Co.—Charleston (3) INHS. Jasper Co.—Newton (1) NHS. Shelby Co.—Holliday (1) INHS.

The smooth soft-shelled turtle indicates a decided preference for rivers and for clean, sandy bottoms. This may account for the absence of records from the prairie counties. In the Embarrass River near Charleston, it and *spinifera* are equally common. However, *mutica* has not been taken from lakes or small streams.

*Amyda spinifera spinifera* (Le Sueur). Spiny Soft-shelled Turtle.

Coles Co.—Charleston (3) INHS. Cumberland Co.—Greenup (1) INHS. Effingham Co.—Effingham (1) INHS. Crawford Co.—Robinson (1) RJS.

Very common. Specimens have been taken in lakes, ponds, small streams, and in rivers. Near Charleston in midsummer, frequently twenty or more have been taken within a few hours by probing sand bars at the water edge. Some have been seen in the mud bottomed dredge ditches of northern Douglas County.

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